CLAIMS:

1.   A method for determining a volume of an object from three-dimensional volume data including graphic information units, comprising: determining a volume of interest including the object; determining thresholds of the graphic information units in the volume of interest; performing a distance transform on the basis of the thresholds

5   for determining a distance map consisting of voxels; providing a seed point in the distance map, which seed point is on the object; determining a number of core-voxels and a number of front-voxels by using the seed point; and determining the volume of the object on the basis of the number of core-voxels and the number of front-voxels.

10   2.   The method of claim 1, wherein at least one of the determination of the number of core-voxels and the number of front-voxels is performed by a downhill expansion of the voxels, wherein the voxels are immediately expanded as long as a growth is directed downwards in a relief of the distance map such that a growth speed is varying.

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3.   The method of claim 2, further comprising the step of: ensuring that the growth continues close to an approximate center of the object by using a priority criterion for directing the growth, wherein the priority criterion is based on a maximum directional second derivate in the distance map.

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4.   The method of claim 2, further comprising the steps of: determining a curve of a sum of voxel distance values of the front voxels in the distance map; determining a minimum of the curve; and deciding on a point to cut off the growth by using the minimum.

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5.   The method of claim 1, wherein the object consists of at least one nodule

attached to one of the lung wall, the diaphragm and a vessel of the surrounding vasculature and wherein the graphic information units correspond to Hounsfield units.

6.   Image processing device, comprising: a memory for storing three-
5   dimensional volume data; and an image processor for determining a volume of an object from the three-dimensional volume data which includes graphic information units, which image processor is adapted to perform the following operation: determining a volume of interest including the object; determining thresholds of the graphic information units in the volume of interest; performing a distance transform on
10   the basis of the thresholds for determining a distance map consisting of voxels; providing a seed point in the distance map, which seed point is on the object; determining a number of core-voxels and a number of front-voxels by using the seed point; and determining the volume of the object on the basis of the number of core-voxels and the number of front-voxels.

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7.   The image processing device of claim 6, wherein at least one of the determination of the number of core-voxels and the number of front-voxels is performed by a downhill expansion of the voxels, wherein the voxels are immediately expanded as long as a growth is directed downwards in a relief of the distance map and
20   wherein a growth speed is varying.

8.   The image processing device of claim 7, wherein the image processor is further adapted to perform the following operation: ensuring that the growth continues close to an approximate center of the object by using a priority criterion for directing
25   the growth, wherein the priority criterion is based on a maximum directional second derivate in the distance map; determining a curve of a sum of voxel distance values of the front voxels in the distance map: determining a minimum of the curve; and deciding on a point to cut off the growth by using the minimum.

30   9.   The image processing device of claim 6, wherein the image processing device is a computer aided tumor volumetric measuring device for computer aided

volumetric measurements on the basis of computed tomography (CT) image scans.

10.   Computer program comprising computer code means for performing the following operation for determining a volume of an object form three-dimensional

5.   volume data including graphic information units when the computer code means is executed on a computerized image processing device: determining a volume of interest including the object; determining thresholds of the graphic information units in the volume of interest; performing a distance transform on the basis of the thresholds for determining a distance map consisting of voxels; providing a seed point in the distance

10   map, which seed point is on the object; determining a number of core-voxels and a number of front-voxels by using the seed point; and determining the volume of the object on the basis of the number of core-voxels and the number of front-voxels.